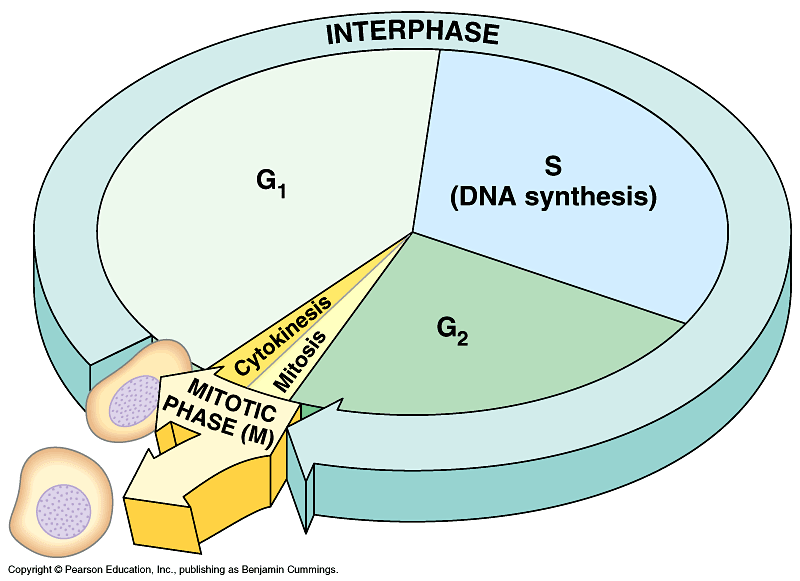
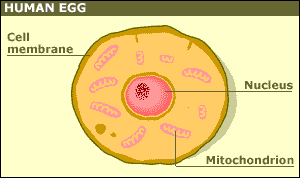
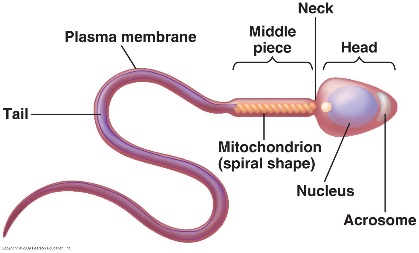
Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period:\_\_\_\_\_\_\_\_\_\_\_\_

Mitosis Review/Meiosis Intro

1. **Complete review mitosis/introduction to meiosis questions.**



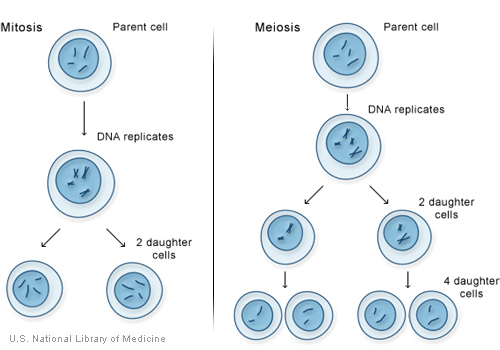
1. Earlier in the year we learned about the cell cycle. What were the three major phases of the cell cycle?
2. We learned that mitosis, followed by cytokinesis, is very important to many living organisms, including humans. Name at least two reasons mitosis and cytokinesis are so important.
3. Uncontrolled cell division is commonly known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. Now let’s talk about another type of cell division - meiosis. Meiosis is the process by which gametes, egg and sperm, are created.

1. How many chromsomes does an egg have? \_\_\_\_\_\_
2. How many chromsomes does sperm have? \_\_\_\_\_\_\_

*Keep in mind….* Egg chromosomes + sperm chromosomes = 46 chromosomes (total # of chromosomes a person has)

1. Compare the two different types of cell divisions - mitosis and meiosis – using a Venn diagram



1. Do the cells created in meiosis have the same number of chromosomes as the parent cell? (Look at the pictures!)
2. Why is it important that gametes, egg and sperm, have half the number of chromosomes as all other cells have? (Think about the function of egg and sperm).
3. Watch Virtual Cell’s Meiosis animation
   1. Go to <http://youtu.be/-DLGfd-Wpr4> and complete the following:
      1. Germ-line cells undergo meiosis to produce \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_ which have only one copy of each chromosome. These haploid gametes fuse to form a \_\_\_\_\_\_\_\_\_\_\_\_\_embryo that grows into the adult.
      2. There are two cell division events during meiosis. The first division, meiosis I, results in two unique daughter cells that have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the amount of DNA as the parent germ-line cell. The second division, meiosis II, results in \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cells that only have one copy of each chromosome. These haploid cells are the gametes that could go on to produce an offspring through sexual reproduction.
      3. Chromosomal material is exchanged between the two pairs of sister chromatids. This event is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ or more commonly, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. After crossing over, the sister chromatids for each chromosome are no longer identical to one another. This is one of the reasons why \_\_\_\_\_\_\_\_\_ two \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (aside from identical twins) are genetically identical.
      4. Two \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, one from the father and one from the mother, may fuse to produce a diploid embryo. The resulting embryo then grows through many cycles of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Watch Meiosis: Crossing Over and Variability [3D Animation]
   1. Go to <http://youtu.be/rqPMp0U0HOA> and answer the following:
      1. When does DNA duplicate?
      2. Name the second event that occurs that is different from what happens in mitosis.
      3. Describe crossing over.
      4. Why are siblings not identical to one another?